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EXAMINER	
HUGHES, SCOTT A	

ART UNIT	PAPER NUMBER
3663	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/618,419	HILLIS ET AL.	
	Examiner	Art Unit	
	SCOTT A. HUGHES	3663	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 June 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-29,54-57 and 60-65* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3-29,54-57 and 60-65* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *06 November 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 6/19/2008 has been entered.

Response to Arguments

Applicant's arguments filed 6/19/2008 have been fully considered but they are not persuasive.

Applicant argues that the Simpson reference does not teach applying radial force that induces a compressive yield on an inner portion of the wall. This argument is not persuasive because Simpson teaches using rollers to expand out sections of the interior wall. As the rollers of Simpson expand the wall, they are applying a selected level of radial force that causes compressive yield of an inner portion of the wall. Simpson does not disclose that this selected force is selected to increase the collapse resistance of the tubular. As mention by applicant, the Peterson reference was cited in the previous Office Action to teach that a selected amount of deformation of the pipe creates an increased collapse resistance. Peterson teaches that the deformation pattern creating grooves in the wall of the tubular increases the total collapse resistance of the tubular

by allowing the grooves to collapse while the rest of the tubular does not. From this teaching in Peterson, it would be obvious to modify Simpson to include selecting the radial force applied that induces a compressive yield on an inner portion of the wall to create the grooves as taught by Peterson in order to increase total collapse resistance of the tubular.

The grooves shown in Peterson show a compressive yield of both the inner and outer portions of the wall. As independent claims 1 and 54 use the term “comprising”, they are open-ended and therefore require at least a compressive yield of an inner portion of the wall. The combination of Simpson and Peterson teaches a compressive yield of both the inner and outer portions of the wall. As this includes a yield of at least the inner portion, it meets the claim language.

With regard to claim 56, applicant argues that Harrall does not provide any indication of swage expansion of the same tubular that is in direct engagement with a rotary expansion tool. This argument is not persuasive because Harrall teaches that rotary tools (the type used by Simpson) can be used to expand portions of previously expanded tubulars. Harrall also teaches that one technique to expand previously expanded tubulars is the use of cone expanders. Therefore, there is a teaching in Harrall that previously formed tubulars can be expanded using a cone expander, and that these tubulars can later be expanded with rotary expanders in order to service portions of existing wells.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 3-19, 21-29, 54-57, and 60-65 are rejected under 35 U.S.C. 102(b) as being anticipated by Harrall (SPE 2002).

With regard to claim 1, Harrall discloses a method of increasing collapse resistance of a tubular (abstract; Page 3, Fig. 5). Harrall discloses locating a tool having at least one bearing member within the tubular abstract; Page 3, Figs. 1-5). Harrall discloses placing the bearing member in engagement with a wall of the tubular to apply a radial force to a discrete zone of the wall (Pages 2-4). Harrall discloses applying the radial force to additional discrete zones of the wall (Pages 2-4). Harrall discloses selecting a level of the radial force to increase collapse resistance of the tubular independent of any constraining effects on the tubular, wherein applying the radial force induces compressive yield of an inner portion of the wall due to selecting the level of the radial force sufficient to cause the compressive yield (abstract; Pages 2-4) (Fig. 5).

With regard to claim 3, Harrall discloses that applying the radial force induces plastic deformation of at least an inner portion of the wall due to selecting the level of radial force sufficient to cause the plastic deformation (Pages 2-4).

With regard to claim 4, Harrall discloses that the bearing member is a rolling element and the tool is moved relative to the tubular to provide a rolling contact between the rolling element and the tubular wall (Fig. 1) (Pages 2-3).

With regard to claim 5, Harrall discloses moving the tool relative to the tubular to provide a sliding contact between the bearing member and the tubular wall (Pages 2-4) (Fig. 1).

With regard to claim 6, Harrall discloses that the tool is advanced axially relative to the tubular (Pages 2-3).

With regard to claim 7, Harrall discloses that the tool is located relative to the tubular about a longitudinal axis of the tubular (abstract; Pages 2-4) (Fig. 1).

With regard to claim 8, Harrall discloses that the tool is located within the tubular (abstract; Pages 2-4))

With regard to claim 9, Harrall discloses that applying the radial force causes a degree of diametric expansion of the tubular (Page 2).

With regard to claim 10, Harrall discloses that applying the radial force causes a permanent diametric expansion of the tubular (Page 2).

With regard to claim 11, Harrall discloses that the tubular experiences little or no diametric expansion (Page 2).

With regard to claim 12, Harrall discloses that the tool is moved relative to the tubular such that the bearing member describes a helical path along the tubular wall (Page 3, 2nd column)

With regard to claim 13, Harrall discloses that the tool has a plurality of bearing members, and each bearing member is urged into engagement with the wall of the tubular to impart a radial force to a respective discrete zone of the tubular wall (Fig. 1).

With regard to claim 14, Harrall discloses that the respective discrete zones are circumferentially spaced relative to one another (Pages 2-4) (Fig. 1).

With regard to claim 15, Harrall discloses that the respective discrete zones are axially spaced relative to one another (abstract; Pages 2-4).

With regard to claim 16, Harrall discloses that the bearing member applies the radial force to the tubular wall as a point load (abstract; Pages 2-4).

With regard to claim 17, Harrall discloses that the bearing member applies the radial force to the tubular wall as a line load (abstract; Pages 2-4).

With regard to claim 18, Harrall discloses that the bearing member is fluid pressure actuated (Pages 1-2).

With regard to claim 19, Harrall discloses that the tool comprises a plurality of bearing members and at least one of the bearing members is independently radially moveable (Fig. 1).

With regard to claim 21, Harrall teaches that rotary expansion tools can be used in previously formed wells (Page 4). Harrall teaches that the method used to create most previously formed wells was to expand the tubulars with cone swages (Pages 1-2).

With regard to claim 22, Harrall discloses expanding the tubular with a cone swage expander prior to steps b) and c) (Pages 1-2) (previously formed wellbores

With regard to claim 23, Peterson teaches that deformations to the tubular can be done on the surface to increase the collapse resistance before the tubular is placed in a wellbore (Page 3, Fig. 5).

With regard to claim 24, Harrall discloses locating the tubular in a wellbore drilled to access hydrocarbon reservoirs, wherein steps a) to c) are executed downhole within the wellbore (abstract; Pages 2-4).

With regard to claim 25, Harrall discloses that the tubular is located within a larger tubular (Pages 2-4).

With regard to claim 26, Harrall discloses that the larger diameter tubular is unexpandable (Pages 2-4).

With regard to claim 27, Harrall discloses that the tool creates a strain path in the wall of the tubular having a circumferential element (Page 3, 2nd column).

With regard to claim 28, Harrall discloses that the tool creates a circumferential strain path (Page 3, 2nd column).

With regard to claim 29, Harrall discloses that the tool creates a helical strain path (Page 3, 2nd column).

With regard to claims 54-55, Harrall discloses a method of increasing collapse resistance of a tubular (abstract; Page 3, Fig. 5). Harrall discloses locating a tool having at least one bearing member within the tubular abstract; Page 3, Figs. 1-5). Harrall discloses placing the bearing member in engagement with a wall of the tubular to apply a radial force to a discrete zone of the wall (Pages 2-4). Harrall discloses applying the radial force to additional discrete zones of the wall (Pages 2-4). Harrall discloses selecting a level of the radial force to increase collapse resistance of the tubular independent of any constraining effects on the tubular, wherein applying the radial force induces compressive yield of an inner portion of the wall due to selecting the level of the

radial force sufficient to cause the compressive yield and wherein the tubular experiences no diametric expansion as a result of the radial force applied by the bearing member (abstract; Pages 2-4) (Fig. 5).

With regard to claim 56, Harrall discloses a method of increasing collapse resistance of a tubular (abstract; page 3; Fig. 5). Harrall discloses expanding the tubular with a cone expander (Pages 1-3). Harrall discloses that previously formed tubulars can be created using cone expanders. Harrall discloses locating a tool having at least one bearing member within the tubular (Fig. 1) (Pages 2-4). Harrall discloses placing the bearing member in direct engagement with a wall of the tubular to apply a radial force to a first and second separated discrete zones of the wall (abstract; Pages 2-4). Harrall discloses selecting the level of radial force to increase collapse resistance of the tubular (Page 3, 2nd column) (Fig. 5).

With regard to claim 57, Harrall discloses constraining an outer diameter of the tubular prior to applying force (abstract; Pages 2-4).

With regard to claim 60, Harrall discloses that applying the radial force induces compressive yield of an inner portion of the wall due to selecting the level of the radial force sufficient to cause the compressive yield (abstract; Pages 2-4) (Fig. 5).

With regard to claim 61, Harrall discloses a method of increasing collapse resistance of a tubular (abstract; Page 3, Fig. 5). Harrall discloses locating a tool having at least one bearing member within the tubular abstract; Page 3, Figs. 1-5). Harrall discloses placing the bearing member in engagement with a wall of the tubular to apply a radial force to a portion of the wall (Pages 2-4). Harrall discloses applying the radial

force to another portion of the wall (Pages 2-4). Harrall discloses selecting a level of the radial force to increase collapse resistance of the tubular independent of any constraining effects on the tubular, wherein applying the radial force induces compressive yield of an inner portion of the wall due to selecting the level of the radial force sufficient to cause the compressive yield (abstract; Pages 2-4) (Fig. 5).

With regard to claim 62, Harrall discloses that the force induces plastic deformation of an inner portion of the wall (Pages 2-3).

With regard to claim 63, Harrall discloses that the tubular experiences little or no diametric expansion (Pages 2-3).

With regard to claims 64-65, Harrall discloses that the tubular has been previously expanded with a cone expander (Pages 1-3).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Harrall as applied to claim 1 above, and further in view of Hempel (2898971).

With regard to claim 20, Simpson does not disclose that the tool comprises a ball-peening tool and is impacted against the inner surface of the wall. Hempel teaches using a roller expanding tool for expanding tubulars and teaches that the tool comprises

a ball-peening tool (Columns 3-5). It would have been obvious to modify Harrall to include a ball-peening tool as taught by Hempel in order to join inner and outer tubulars.

Claims 1, 3-19, 23-29, 54-55, 57, and 61-63 are rejected under 35 U.S.C. 103(a) as being unpatentable over Simpson (WO0037766) in view of Peterson (5275240).

With regard to claim 1, Simpson discloses a method of increasing collapse resistance of a tubular (abstract). Simpson discloses locating a tool 100 having at least one bearing member 116 within the tubular (Figs. 1-3, 11a-16b) (Pages 14-17). Simpson discloses placing the bearing member in engagement with a wall of the tubular to apply a radial force to a discrete zone of the wall (Figs. 5a-8b) (Pages 15-18). Simpson discloses applying the radial force to further discrete zones of the wall (Figs. 5a-8b) (Pages 15-18). Simpson discloses selecting a level of the radial force, wherein applying the radial force induces compressive yield on an inner portion of the wall due to selecting the level of radial force sufficient to cause the compressive yield (Figs. 5a-10b) (Pages 15-20). Simpson does not disclose that the radial force increases the collapse resistance of the tubular independent of any constraining effects on the tubular. Simpson does disclose that the rollers plastically deform the tubular by expansion. Peterson teaches that the collapse resistance of a tubular can be increased by adding grooves to the interior surface of the tubular, and this collapse resistance is independent of any constraining effects on the tubular (abstract; Column 2, Lines 1-44; Column 3, Line 1 to Column 4, Line 24; Column 6, Lines 1-10). It would have been obvious to modify Simpson to include using the axial forces from the rollers to create grooves in

the inner surface in order to prevent casing damage if there is compaction of the surrounding formation.

With regard to claim 2, Simpson discloses that applying the radial force induces compressive yield of at least an inner portion of the wall due to selecting the level of the radial force sufficient to cause the compressive yield (Figs. 5a-10b) (Pages 15-20).

With regard to claim 3, Simpson discloses that applying the radial force induces plastic deformation of at least an inner portion of the wall due to selecting the level of radial force sufficient to cause the plastic deformation (Figs. 5a-10b) (Pages 15-20).

With regard to claim 4, Simpson discloses that the bearing member is a rolling element and the tool is moved relative to the tubular to provide a rolling contact between the rolling element and the tubular wall (Figs. 1-3, 6, 24, 28a-30) (Pages 15-19).

With regard to claim 5, Simpson discloses moving the tool relative to the tubular to provide a sliding contact between the bearing member and the tubular wall (Figs. 1-3, 6, 24, 28a-30) (Pages 15-19, 34-38).

With regard to claim 6, Simpson discloses that the tool is advanced axially relative to the tubular (Figs. 1-3, 6, 24, 28a-30) (Pages 15-19, 34-38).

With regard to claim 7, Simpson discloses that the tool is located relative to the tubular about a longitudinal axis of the tubular (Figs. 1-3, 6, 24, 28a-30) (Pages 15-19, 34-38).

With regard to claim 8, Simpson discloses that the tool is located within the tubular (Figs. 1-6, 24, 28a-30)

With regard to claim 9, Simpson discloses that applying the radial force causes a degree of diametric expansion of the tubular (Figs. 1-3, 6, 24, 28a-30) (Pages 15-19, 34-38).

With regard to claim 10, Simpson discloses that applying the radial force causes a permanent diametric expansion of the tubular (Figs. 1-3, 6, 24, 28a-30) (Pages 15-19, 34-38).

With regard to claim 11, Simpson discloses that the tubular experiences little or no diametric expansion (Figs. 1-3, 6, 24, 16a-30) (Pages 15-19, 34-38). As seen in the figures, there is little expansion of the diameter.

With regard to claim 12, Simpson discloses that the tool is moved relative to the tubular such that the bearing member describes a helical path along the tubular wall (Figs. 1-3, 6, 24, 28a-30) (Pages 15-19, 29, 34-38). Simpson discloses that the tool rotates as it moves in the tubular. This rotation and movement downward or upward describes a helical path.

With regard to claim 13, Simpson discloses that the tool has a plurality of bearing members, and each bearing member is urged into engagement with the wall of the tubular to impart a radial force to a respective discrete zone of the tubular wall (Figs. 1-6) (Pages 15-20)

With regard to claim 14, Simpson discloses that the respective discrete zones are circumferentially spaced relative to one another (Figs. 1-6).

With regard to claim 15, Simpson discloses that the respective discrete zones are axially spaced relative to one another (Figs. 1-6) (Pages 15-20). Simpson discloses

moving the tool up or down the borehole, and therefore the expanded zones are axial spaced as the tool expands different sections of the tubular as it moves up or down.

With regard to claim 16, Simpson discloses that the bearing member applies the radial force to the tubular wall as a point load (Figs. 1-6).

With regard to claim 17, Simpson discloses that the bearing member applies the radial force to the tubular wall as a line load (Figs. 1-6).

With regard to claim 18, Simpson discloses that the bearing member is fluid pressure actuated (Pages 1-10, 14-15).

With regard to claim 19, Simpson discloses that the tool comprises a plurality of bearing members and at least one of the bearing members is independently radially moveable (Pages 1-10, 14-19).

With regard to claim 23, Peterson teaches that deformations to the tubular can be done on the surface to increase the collapse resistance before the tubular is placed in a wellbore (Columns 1-4).

With regard to claim 24, Simpson discloses locating the tubular in a wellbore drilled to access hydrocarbon reservoirs, wherein steps a) to c) are executed downhole within the wellbore (Pages 1-10).

With regard to claim 25, Simpson discloses that the tubular is located within a larger tubular (Pages 18-24).

With regard to claim 26, Simpson discloses that the larger diameter tubular is unexpandable (Page 18, Lines 19-29).

With regard to claim 27, Simpson discloses that the tool creates a strain path in the wall of the tubular having a circumferential element (Pages 1-10, 15-20).

With regard to claim 28, Simpson discloses that the tool creates a circumferential strain path (Pages 1-10, 15-20).

With regard to claim 29, Simpson discloses that the tool creates a helical strain path (Pages 15-19, 29, 34-38).

With regard to claim 54, Simpson discloses a method of increasing collapse resistance of a tubular (abstract). Simpson discloses locating a tool 100 having at least one bearing member 116 within the tubular (Figs. 1-3, 11a-16b) (Pages 14-17). Simpson discloses placing the bearing member in engagement with a wall of the tubular to apply a radial force to a discrete zone of the wall (Figs. 5a-8b) (Pages 15-18). Simpson discloses applying the radial force to further discrete zones of the wall (Figs. 5a-8b) (Pages 15-18). Simpson discloses selecting a level of the radial force, wherein applying the radial force induces compressive yield on an inner portion of the wall due to selecting the level of radial force sufficient to cause the compressive yield (Figs. 5a-10b) (Pages 15-20). Simpson does not disclose that the radial force increases the collapse resistance of the wherein the tubular experiences no diametric expansion as a result of the radial force applied. Simpson does disclose that the rollers plastically deform the tubular by expansion. Peterson teaches that the collapse resistance of a tubular can be increased by adding grooves to the interior surface of the tubular, and this collapse resistance is accomplished with any diametric expansion (abstract; Column 2, Lines 1-44; Column 3, Line 1 to Column 4, Line 24; Column 6, Lines 1-10). It

would have been obvious to modify Simpson to include using the axial forces from the rollers to create grooves in the inner surface in order to prevent casing damage if there is compaction of the surrounding formation.

With regard to claim 55, Peterson teaches that an outer diameter of the tubular experiences no diametric expansion, and therefore it would be obvious that using the rollers of Simpson to create the grooves in the inner surface would not increase diameter as a result of the radial force applied by the bearing member (abstract; Column 2, Lines 1-44; Column 3, Line 1 to Column 4, Line 24).

With regard to claim 57, Simpson discloses constraining an outer diameter of the tubular prior to applying force (Pages 18, 30-38).

With regard to claim 61, Simpson discloses a method of increasing collapse resistance of a tubular (abstract). Simpson discloses locating a tool 100 having at least one bearing member 116 within the tubular (Figs. 1-3, 11a-16b) (Pages 14-17). Simpson discloses placing the bearing member in engagement with a wall of the tubular to apply a radial force to a portion of the wall (Figs. 5a-8b) (Pages 15-18). Simpson discloses applying the radial force to another portion of the wall (Figs. 5a-8b) (Pages 15-18). Simpson discloses selecting a level of the radial force, wherein applying the radial force induces compressive yield on an inner portion of the wall due to selecting the level of radial force sufficient to cause the compressive yield (Figs. 5a-10b) (Pages 15-20). Simpson does not disclose that the radial force increases the collapse resistance of the tubular independent of any constraining effects on the tubular. Simpson does disclose that the rollers plastically deform the tubular by expansion.

Peterson teaches that the collapse resistance of a tubular can be increased by adding grooves to the interior surface of the tubular, and this collapse resistance is independent of any constraining effects on the tubular (abstract; Column 2, Lines 1-44; Column 3, Line 1 to Column 4, Line 24; Column 6, Lines 1-10). It would have been obvious to modify Simpson to include using the axial forces from the rollers to create grooves in the inner surface in order to prevent casing damage if there is compaction of the surrounding formation.

With regard to claim 62, Simpson discloses that the force induces plastic deformation (Pages 15-20).

With regard to claim 63, Simpson discloses that the tubular experiences little or no diametric expansion (Figs. 1-3, 6, 24, 16a-30) (Pages 15-19, 34-38). As seen in the figures, there is little expansion of the diameter.

Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Simpson in view of Peterson as applied to claim 1 above, and further in view of Hempel (2898971).

With regard to claim 20, Simpson does not disclose that the tool comprises a ball-peening tool and is impacted against the inner surface of the wall. Hempel teaches using a roller expanding tool for expanding tubulars and teaches that the tool comprises a ball-peening tool (Columns 3-5). It would have been obvious to modify Simpson to include a ball-peening tool as taught by Hempel in order to join inner and outer tubulars.

Claims 21-22 and 64-65are rejected under 35 U.S.C. 103(a) as being unpatentable over Simpson in view of Peterson as applied to claims 1 and 61 above, and further in view of Harrall (SPE 2002).

With regard to claims 21 and 64, Simpson does not disclose that the tubular has been previously expanded by a cone swage expander. Harrall teaches that rotary expansion tools can be used in previously formed wells (Page 4). Harrall teaches that the method used to create most previously formed wells was to expand the tubulars with cone swages (Pages 1-2). It would have been obvious to modify Simpson to use the tool having the bearing members on wells that were previously formed with cone swage expanders as taught by Harrall in order to strengthen worn casing.

With regard to claims 22 and 65, Harrall discloses expanding the tubular with a cone swage expander prior to steps b) and c) (Pages 1-2) (previously formed wellbores).

Claims 56 and 60 are rejected under 35 U.S.C. 103(a) as being unpatentable over Simpson in view of Harrall (SPE 2002).

With regard to claim 56, Simpson discloses a method of increasing collapse resistance of a tubular (abstract). Simpson discloses locating a tool 100 having at least one bearing member 116 within the tubular (Figs. 1-3, 11a-16b) (Pages 14-17). Simpson discloses placing the bearing member in direct engagement with a wall of the tubular to apply a radial force to a discrete zone of the wall (Figs. 5a-8b) (Pages 15-18). Simpson discloses applying the radial force to further discrete zones of the wall (Figs.

5a-8b) (Pages 15-18). Simpson discloses selecting a level of the radial force to increase collapse resistance of the tubular (Figs. 5a-10b) (Pages 15-20). The force selected by Simpson deforms the inner tubular into permanent contact with an outer tubular, thereby enjoining the two and increasing collapse resistance. Simpson does not disclose expanding the tubular with a cone expander before locating the tool in the tubular. Harrall teaches that rotary expansion tools can be used in previously formed wells (wells formed before the rotary expansion tool is located in the well), and that these tools increase the collapse resistance of the tubular (Page 4). Harrall teaches that the method used to create most previously formed wells was to expand the tubulars with cone swages (Pages 1-3). It would have been obvious to modify Simpson to use the tool having the bearing members on wells that were previously formed with cone swage expanders as taught by Harrall in order to strengthen worn casing.

With regard to claim 60, Simpson discloses that applying the radial force induces compressive yield of an inner portion of the wall (Figs. 5a-10b) (Pages 15-20).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SCOTT A. HUGHES whose telephone number is (571)272-6983. The examiner can normally be reached on M-F 9:00am to 5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack Keith can be reached on (571) 272-6878. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Scott A. Hughes/
Examiner, Art Unit 3663